

REMARKS

35 U.S.C. § 102

The Examiner rejected claims 1-8, 12, 15, 51-55, 59-68, 83-85 , 87 and 89 under 35 U.S.C. 102(b) as being anticipated by Johnson (US Patent 6,955,187).

Claim 1

The Examiner states:

Regarding claims 1-3, 51-53 and 59-61, Johnson teaches a battery having a control valve for controlling airflow into the battery. The control portion is made of two cylindrical sleeves, or members, having holes, that can be moved into or out of registration depending on whether air is required for the cell. The movement is controlled by actuators that are attached to the cylinders (abstract; Figure 1; column 3 lines 9-11). Further, Johnson teaches that the current required to induce a shape change in the actuators is generated by electricity from the electrochemical cell (column 4 lines 15-17).

Applicants submit that Johnson fails to disclose each and every limitation of claim 1 arranged as in claim 1. Johnson neither discloses nor suggests a member, whose shape deforms in response to a current drawn from a battery, being coupled to only one of the first and second members. Rather, Johnson discloses two actuator members relying on one of the actuator members to open the air valve and the other actuator member to close the air valve.

In the Office Action dated July 22, 2007, the Examiner states:

Specifically, regarding claim 1, Applicant argues that Johnson discloses two actuators. The examiner agrees, but the claim requires a "member." In this case, the actuator mechanism of Johnson, having two actuators and a rod attaching the actuators to the first and second members, is considered a member whose shape deforms in the context of the instant claims.

Applicants disagree. The present application uses one shape changing member whereas Johnson needs at least two “shape changing” members. Further, even if it is construed, *arguendo*, two actuators and a rod comprise a ‘member’, Johnson still fails to disclose each and every limitation of claim 1. The actuators in Johnson are connected to both the first and second

members whereas claim 1 clearly cites the member being coupled to one of the first and second members. Johnson (col 3, 4) mentions:

Actuator mechanism 29 comprises a pair of an "on" actuator element 34 and an "off" actuator element 36 (FIGS. 7-10). Both actuator elements are comprised of a wire, or pair of wires, formed of a shape memory alloy (also called SMA) material.

Referring to FIG. 7, one end of the "off" actuator wire 36 is electrically connected with terminal 78 and the wire's 20 opposite end is connected with a terminal 80 that in turn is connected through line 82 to contact 58 of load switch 48. The two terminals 78 and 80 are both attached to end 30 of the outer sleeve.

As shown in FIGS. 1, 3 and 4, "on" segment 90 of actuator wire 34 extends diametrically across the end of inner sleeve 16.

Applicants submit that claim 1 is patentable for at least the reasons mentioned above. Claims 2-3 are also patentable for at least the reasons discussed with respect to claim 1.

Claim 51

Claim 51 is amended to cite passing current through a member, coupled to only one of a first cylindrical member and a second cylindrical member, to move the one of the first cylindrical member and the second cylindrical member from a first position to a second position. Johnson fails to disclose each and every feature of claim 51. As discussed above with respect to claim 1, the actuators in Johnson are connected to both the first and second members.

Applicants submit that claim 51 is patentable for at least the reasons mentioned above. Claims 52-53 were amended for clarity. Claims 52-53 are also patentable for at least the reasons discussed with respect to claim 51.

Claim 59

Claim 59 is amended to cite a member coupled to only one of a first and a second cylindrical members. Therefore Johnson fails to disclose each and every element of claim 59 at least for the reasons discussed with respect to claim 1.

Applicants submit that claim 59-61 are patentable at least for analogous reasons discussed with respect to claim 1.

Claims 4-8, 12, 15, 54-55, 62-68, 83-85 , 87 and 89

As for claims 4, 15 and 62, as seen in Figure 1, the multiple holes are arranged in columns along the cylinders.

Regarding claims 5 and 63, it can be seen in Figures 5 and 6 that the second member is coupled to the mechanism and that the second member moves in relation to the first.

As for claims 83, 85 and 87, the "first member" of the instant application is considered the inner member of Johnson and the "second member" the outer member. Thus, Johnson also teaches these limitations as discussed above.

As for claims 6, 55, 64, 67, Johnson teaches that the actuators are made of wire shape memory alloys (column 3 lines 55-59).

Regarding claims 7, 65 and 89, Johnson further teaches that the shape memory alloy is preferably TiNi (column 3 lines 59-61).

As for claim 54, in Johnson, the current required to induce a shape change in the actuators is generated by electricity from the electrochemical cell (column 4 lines 15-17).

Regarding claims 12 and 68, it can be seen in Figures 5 and 6 of Johnson that a member is coupled between the actuator and the upper end portion of the second member.

Regarding claims 8, 66 and 84, Johnson teaches that when the valve is in the fully off position, no current flows from the cell to the wire actuator (column 5 lines 22-27).

Claims 5-7, 55 and 63-65 were amended for clarity. Applicants submit that claims 4-8, 12, 15, 54-55, 62-68, 83-85 , 87 and 89 are patentable for at least the reasons for which the claims on which they depend are patentable.

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35 U.S.C. § 103

Claims 9-11, 13, 69 and 70 are rejected under 35 U.S.C. 103:

5. Claims 13, 69 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson.

6. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson as applied to claim 6 above, and further in view of Brotz (US 5,588,295).

Claims 9-11, 13, 69 and 70 are patentable for at least the reasons for which the claims on which they depend are patentable.

Please apply the \$130 fee for the Petition for Extension of Time and any other charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: 11/4/04

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